What is claimed is:

1. A dynamic stabilization system for stabilization of the spine, comprising:

a stabilization element configured to span between at least two vertebrae of the spine:

at least two bone anchors, each having a bone engagement portion; and

at least two connectors for connecting a corresponding one of said bone anchors to said stabilization element, at least one connector including;

a flexible element between the bone anchor and the stabilization element to permit relative pivoting therebetween; and

an adjustment element for adjusting the flexibility of said flexible element.

2. The dynamic stabilization system according to claim 1, wherein said at least one connector includes a bearing member attached to said stabilization element, said bearing member including said flexible element.

3. The dynamic stabilization system according to claim 2, wherein:

said stabilization element includes an elongated spinal rod;

said bearing member is a rod end bearing including a rod engagement portion;

and said flexible element is a bearing element of said rod end bearing.

4. The dynamic stabilization system according to claim 3, wherein:

said bearing element is received within a bearing race of said rod end bearing; and

said adjustment element is arranged to compress said bearing element within said bearing race.

5. The dynamic stabilization system according to claim 3, wherein said rod engagement portion includes a bore for receiving a portion of said spinal rod therein and a set screw for clamping said spinal rod within said bore.

6. The dynamic stabilization system according to claim 1, wherein:

at least one of said bone anchors includes a stem having a threaded portion;

said flexible element includes a bore for receiving said stem therethrough; and

said adjustment element includes a nut engaging said threaded portion and arranged to compress said flexible element as said nut is threaded onto said threaded portion.

7. The dynamic stabilization system according to claim 6, wherein said at least one of said bone anchors includes an intermediate portion between said stem and said bone engagement portion, said intermediate portion configured to support said flexible element so that said flexible element is compressed between said intermediate portion and said nut when said nut is threaded onto said threaded portion.

8. The dynamic stabilization system according to claim 1, wherein another of said connectors is configured to substantially rigidly connect one of said bone anchors to said stabilization element.

9. The dynamic stabilization system according to claim 1, wherein:

said stabilization element includes an elongated spinal rod;

at least one of said bone anchors includes a stem having a threaded portion and defining slot sized to receive said spinal rod therethrough;

said flexible element includes a sleeve disposed around said stem with at least a portion disposed between the bone engagement portion of the bone anchor and the spinal rod when the rod extends through said opening; and

said adjustment element includes a nut engaging said threaded portion and arranged to compress said sleeve as said nut is threaded onto said threaded portion.

10. The dynamic stabilization system according to claim 9, wherein said flexible element includes a first sleeve disposed between said bone engagement portion and the spinal rod and a second sleeve disposed between said spinal rod and said nut.

11. The dynamic stabilization system according to claim 9, wherein said sleeve is disposed between said bone engagement portion and said nut and includes an opening for receiving rod therethrough when said rod extends through said slot in said stem.

12. The dynamic stabilization system according to claim 1, wherein:

said stabilization element is an elongated spinal plate defining at least one opening therethrough;

at least one of said bone anchors includes a stem having a threaded portion;

said adjustment element includes a nut engaging said threaded portion; and

said flexible element is a bushing engaged within said at least one opening, said bushing defining a bore for receiving said stem therethrough and including an upper head portion disposed between spinal plate and said nut, whereby said nut compresses said head portion when said nut is threaded onto said threaded portion.

13. The dynamic stabilization system according to claim 12, wherein said flexible element includes a lower head portion disposed between said spinal plate and said bone engaging portion of said bone anchor.

14. The dynamic stabilization system according to claim 13, wherein said bone anchor includes an intermediate portion between said bone engagement portion and said lower head portion of said bushing.

15. A dynamic stabilization system for stabilization of the spine, comprising:

a stabilization element configured to span between at least two vertebrae of the spine:

at least two bone anchors, each having a bone engagement portion and a stem portion; and

at least two connectors for connecting a corresponding one of said bone anchors to said stabilization element, at least one connector including a bearing member associated with said stabilization element and including bearing race and a flexible bearing element mounted within said bearing race, said flexible bearing element configured to receive said stem portion of said bone anchor therethrough.

16. The dynamic stabilization system according to claim 15 wherein said at least one connector includes an adjustment element for adjusting the flexibility of said flexible bearing element.

17. The dynamic stabilization system according to claim 16, wherein said adjustment element is arranged to compress said bearing element within said bearing race.

18. The dynamic stabilization system according to claim 17, wherein:

said stem of least one of said bone anchors includes a threaded portion; and

said adjustment element includes a nut engaging said threaded portion and arranged to compress said flexible bearing element as said nut is threaded onto said threaded portion.

19. The dynamic stabilization system according to claim 15, wherein:

said stabilization element includes an elongated spinal rod;

said bearing member is a rod end bearing including a rod engagement portion configured for engagement to said spinal rod.

20. The dynamic stabilization system according to claim 19, wherein said rod engagement portion includes a bore for receiving a portion of said spinal rod therein and a set screw for clamping said spinal rod within said bore.

21. A dynamic stabilization system for stabilization of the spine, comprising:

an elongated spinal stabilization rod configured to span between at least two vertebrae of the spine:

at least two bone anchors, each having a bone engagement portion and at least one of said bone anchors including a stem defining slot sized to receive said spinal rod therethrough; and

a flexible sleeve disposed around said stem with at least a portion disposed between the bone engagement portion of the bone anchor and the spinal rod when the rod extends through said opening.

22. The dynamic stabilization system according to claim 21, wherein:

said stem includes a threaded portion, and

said system further comprises a nut engaging said threaded portion and arranged to compress said sleeve as said nut is threaded onto said threaded portion.

23. The dynamic stabilization system according to claim 22, wherein said flexible sleeve includes a first sleeve disposed between said bone engagement portion and the spinal rod and a second sleeve disposed between said spinal rod and said nut.

24. The dynamic stabilization system according to claim 23, wherein said flexible sleeve is disposed between said bone engagement portion and said nut and includes an opening for receiving rod therethrough when said rod extends through said slot in said stem.

25. A method for dynamic stabilization of motion segments of the spine comprising the steps of:

positioning a stabilization element adjacent the spine, the stabilization element configured to span a length of the spine between at least two motion segments;

engaging bone anchors to at least two motion segments;

coupling the bone anchors to the stabilization element with a flexible element between at least one bone anchor and the stabilization element; and

adjusting the flexibility of said flexible element.

26. The method for dynamic stabilization according to claim 25, wherein the step of adjusting the flexibility includes compressing said flexible element.

27. The method for dynamic stabilization according to claim 25, further comprising the step of repairing or replacing all or part of the intervertebral disc between at least two motion segments.

28. A method for dynamic stabilization of a motion segment of the spine comprising the steps of:

introducing a device into an intervertebral space to at least partially maintain or restore the natural motion of the disc at the motion segment; and

coupling a dynamic stabilization system across the motion segment that permits natural motion of the disc.

29. The method for dynamic stabilization according to claim 28, wherein the device includes a device for replacing or augmenting the nucleus pulposus of the intervertebral disc.

30. The method for dynamic stabilization according to claim 29, wherein the step of introducing a device includes introducing a polymeric prosthesis to replace or augment the nucleus pulposus in which the polymeric prosthesis exhibits physical properties similar to the natural nucleus pulposus